US Army Corps of Engineers®
Engineer Research and Development Center

Hydrogeomorphic Approach for Assessing Wetland Functions

Technology

The HGM Approach provides a tool to rapidly assess wetland functions, compute potential project impacts, calculate mitigation requirements, and project future with- and without-project scenarios. The Approach is a collection of concepts and methods that allows wetlands managers and field personnel to develop functional indices that can be used to assess the capacity of a wetland to perform functions relative to similar wetlands in a region. With HGM, managers and field personnel can classify wetlands based on geomorphic setting, water source, and hydrodynamics, and can subdivide classes into subclasses using other region-specific characteristics. Users develop models for each classified wetland and calibrate those models using data collected from reference wetlands. The calibrated models are then field-tested, revised, and published as a regional guidebook.

Problem

Managers of wetlands all across America are required to measure the capacity of their wetlands to perform certain functions. Previous methods of assessing wetland functions were subjective. To assist managers in this task, the ERDC/EL has developed the Hydrogeomorphic (HGM) Approach for assessing wetland functions. HGM is a scientifically based technique for assessing wetland functions so that results are reproducible from user to user. HGM is a tool that Corps customers or the public can use to assess project impacts and calculate wetland mitigation.

Expected Cost to Implement

ERDC/EL developed the HGM process and a series of reports entitled the "Guidelines to Guidebook Development" so that wetlands managers would be able to develop their own Guidebooks specific to their region. In areas where Guidebooks are already available, wetlands managers can perform their own HGM assessments. If necessary, the EL staff is also available to help Corps District personnel apply the HGM Approach and/or develop Guidebooks on a reimbursable basis. Costs for this technical assistance will vary depending upon the level of involvement of the EL staff. For a cost estimate, please contact Dr. Chris V. Noble, 601-634-3482, Chris.V.Noble@erdc.usace.army.mil.

Benefits/Savings

The HGM approach saves time and money by allowing wetland managers to:

- Quickly (depending on project site, but generally less than 4 hours) assess project alternatives and unavoidable project impacts.
- Consider alternatives in wetland mitigation; conduct trade-off analyses.

- Minimize the impacts of mitigation.
- Design mitigation projects.
- Monitor the success of mitigation projects.
- Determine minimal effects under the Food Security Act.

Status

- Development of HGM regional guidebooks is an ongoing process.

ERDC POC

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Distribution Sources

All HGM-related technical reports prepared by the Corps can be accessed online at: http://el.erdc.usace.army.mil/wetlands/hgmlit.html.

Available Documentation

A number of guidebooks have been developed for various regions of the United States. Links to all of the regional guidebooks can be found at: http://el.erdc.usace.army.mil/wetlands/guidebooks.html.

Available Training

The official training program of the Corps of Engineers is the Proponent-Sponsored Engineer Corps Training (PROSPECT) series. The USACE Learning Center (http://pdsc.usace.army.mil) in Huntsville, AL, manages the program. A large variety of classes are taught within the series, as indicated below. Several classes, particularly #137 and #239, are relevant to the HGM Approach.

- #137 Reg V, "Wetland Functions and Values"
- #140, Reg IV, "Wetlands Identification and Delineation"
- #239, "Wetland Mitigation Bank Development and Management"
- #272, "Fundamentals of Wetland Ecology"
- #273, "Wetlands Evaluation Procedures"
- #275, "Wetlands Constructed for Water Quality Improvement"
- #276, "Wetlands Development and Restoration"
- #426, "Wetland Riverine Functional Assessment/Ecology for Project Managers Workshop"
- #439, "Constructed Wetlands for Habitat Mitigation"
- #440, "Hydrology and Construction of Mitigation Wetlands"

Available Support

For support in implementing the HGM approach to assessing wetlands, please contact: Dr. Chris V. Noble, 601-634-3482, Chris.V.Noble@erdc.usace.army.mil.